

**FIG. 1**

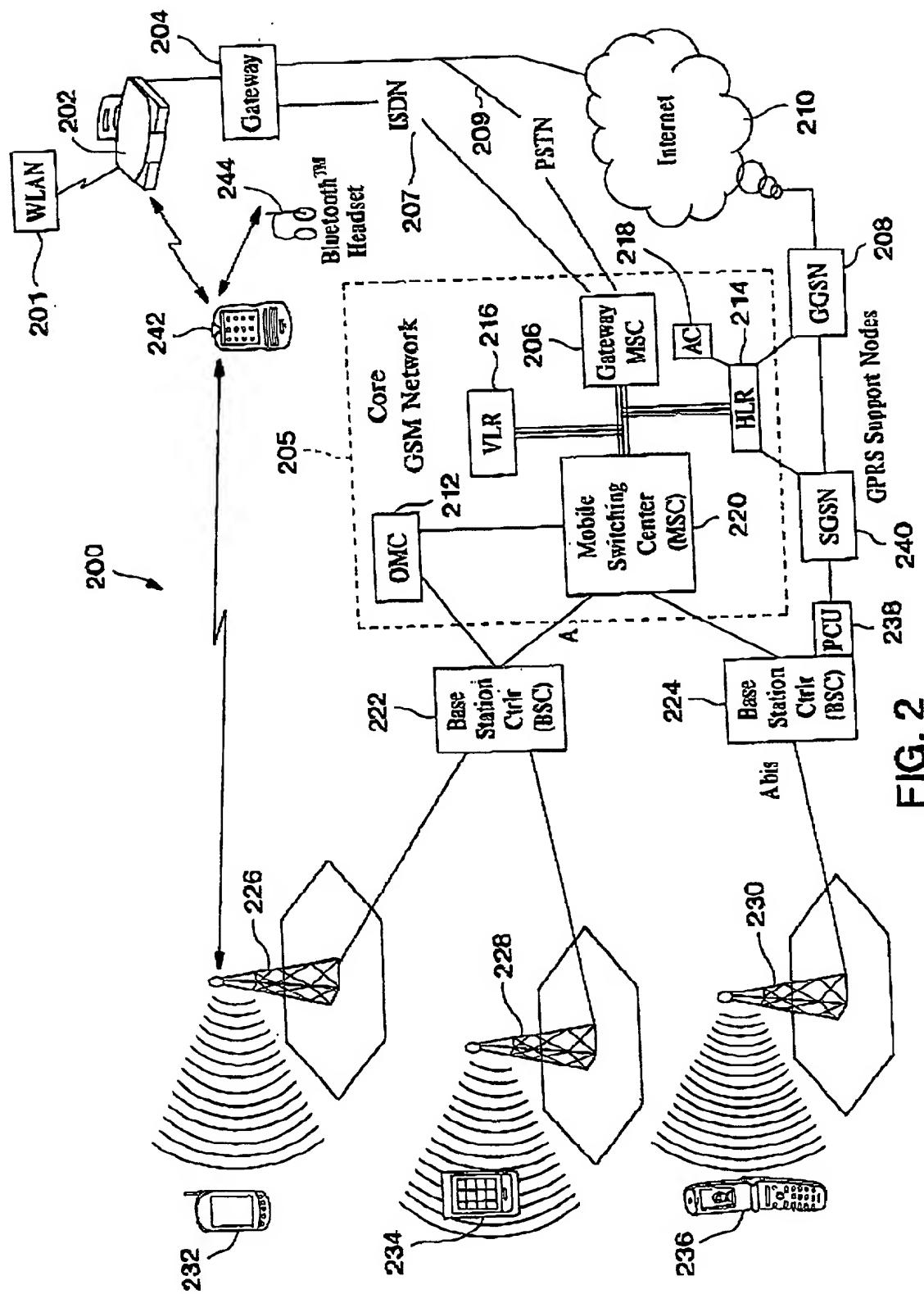
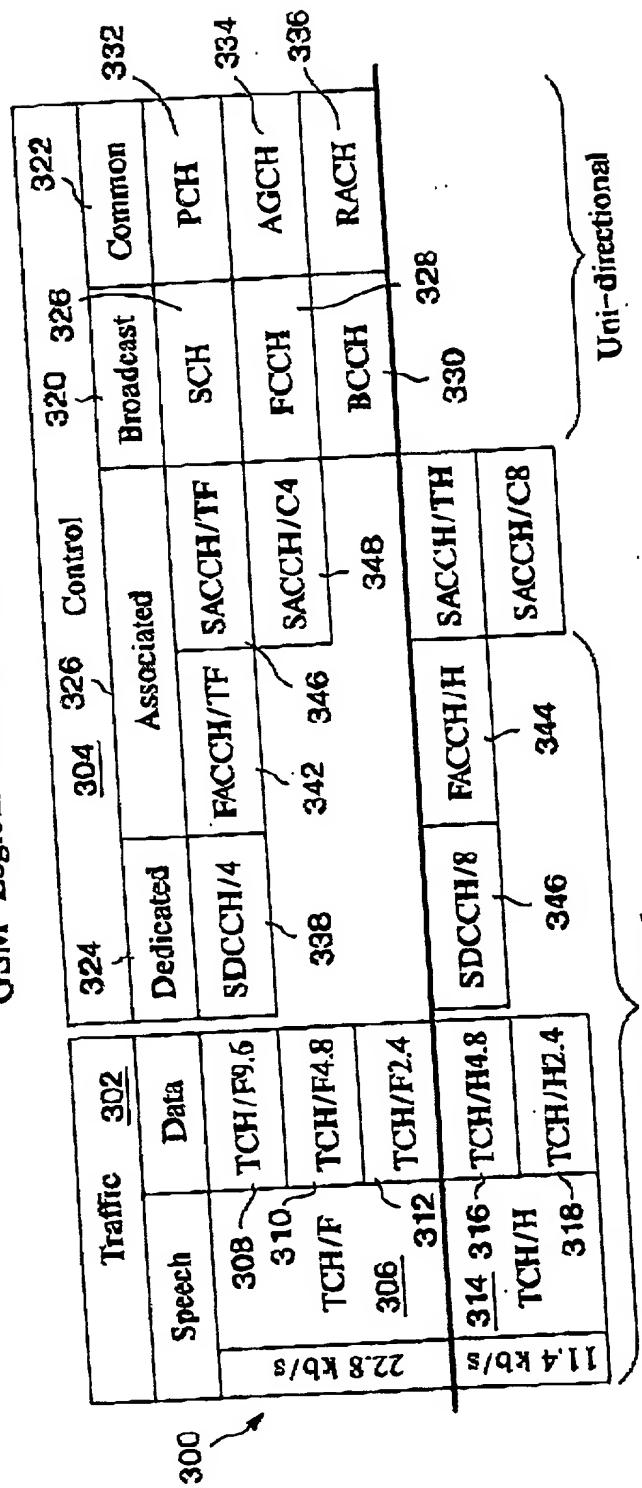


FIG. 2

## GSM-Logical Channel Types



Bi-directional

Uni-directional

Traffic - speech or data.  
 SDCCH: Standalone Dedicated - intermediate channel for authentication and call setup.  
 FACCH: Urgent commands to initiate hand-over - same information as SDCCH.  
 SAOCH: Fast Access Control - link maintenance (power, timing advance, e.t.c.)  
 FCCH: Slow Access Control - link maintenance (power, timing advance, e.t.c.)  
 FCCH: Frequency Correction - MU clock and frequency synchronization - not for equalization.  
 FCCH: Synchronization - MU frame and slot/time synchronization.  
 FCCH: Broadcast Control - network configuration parameters for access.  
 FCCH: Paging - alert for incoming call.  
 FCCH: Access Grant - BS provides parameters for access to dedicated channel for call setup.  
 FCCH: Random Access - MU posts requests to BS.

FIG. 3

### Call Establishment Process—Mobile Originated

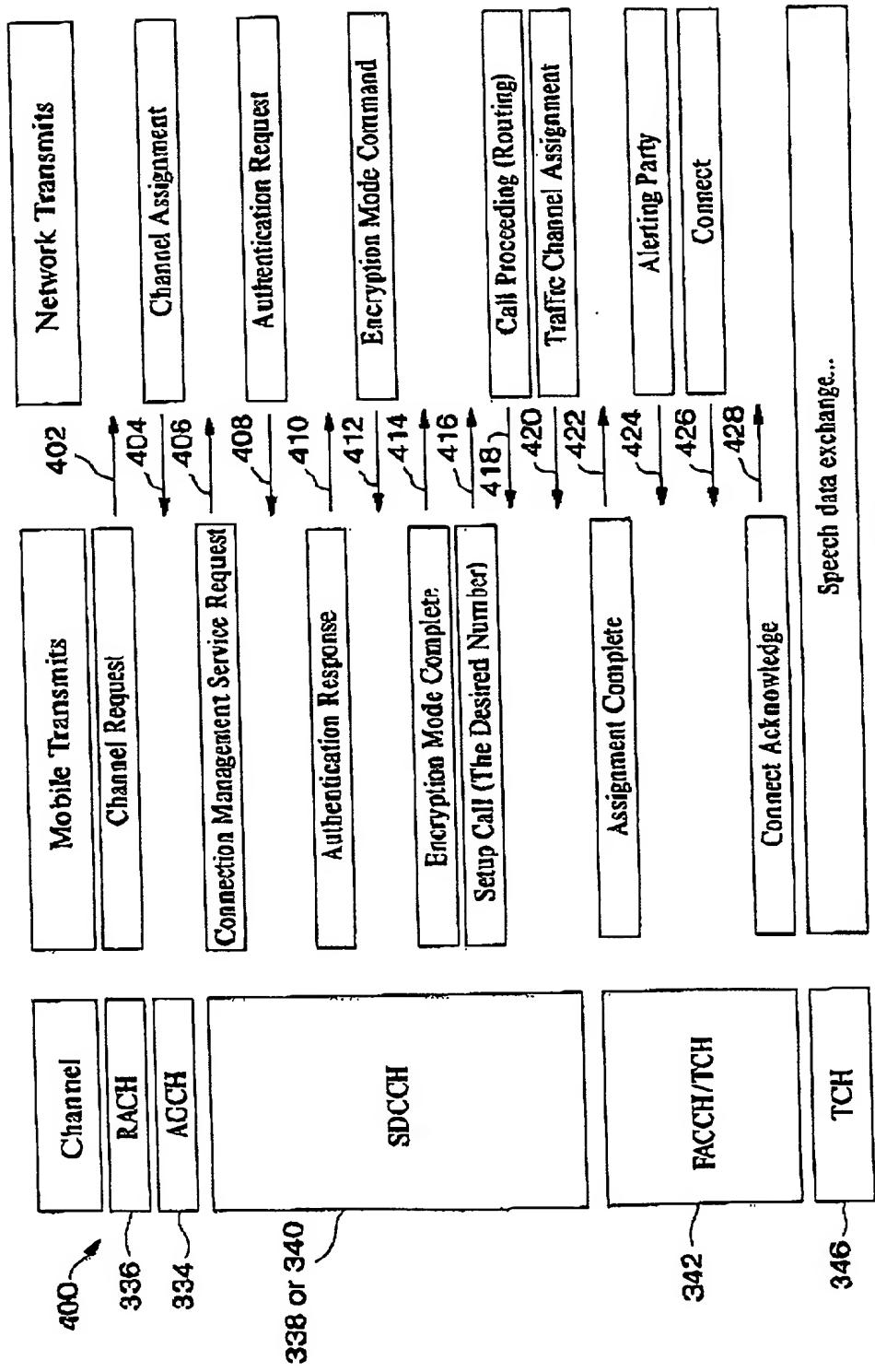


FIG. 4

## Receiving a Call-Mobile Terminated

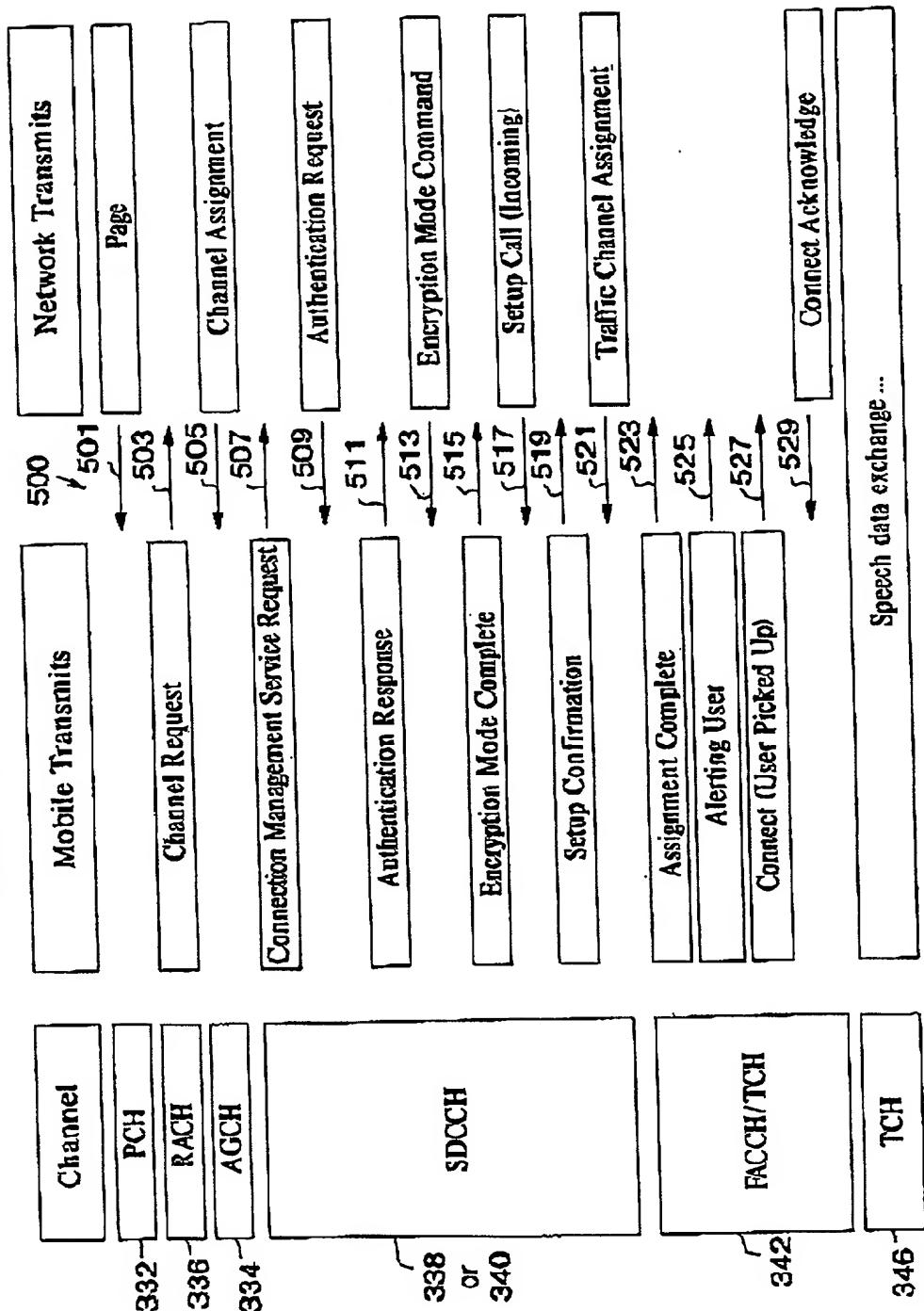


FIG. 5

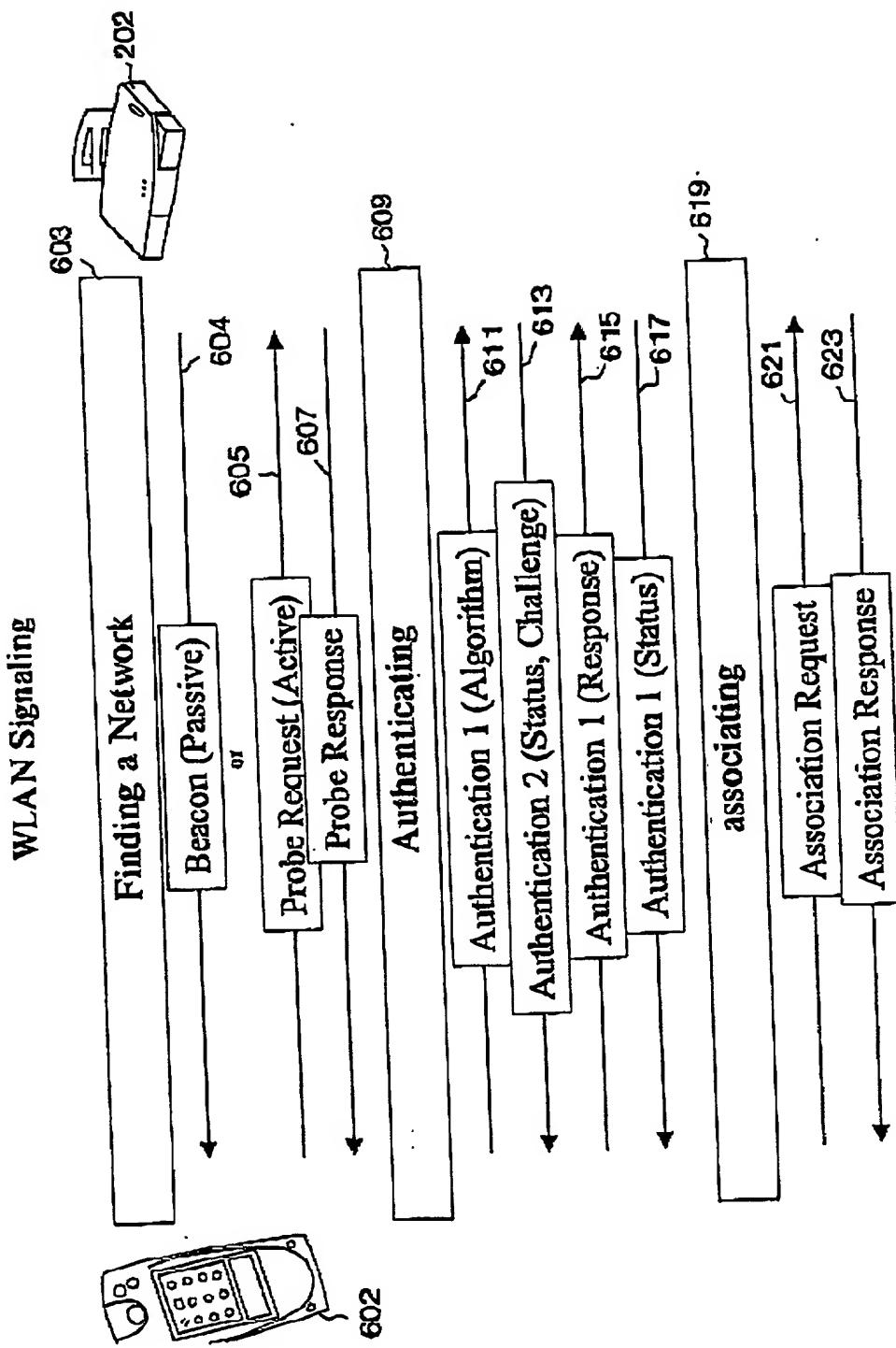
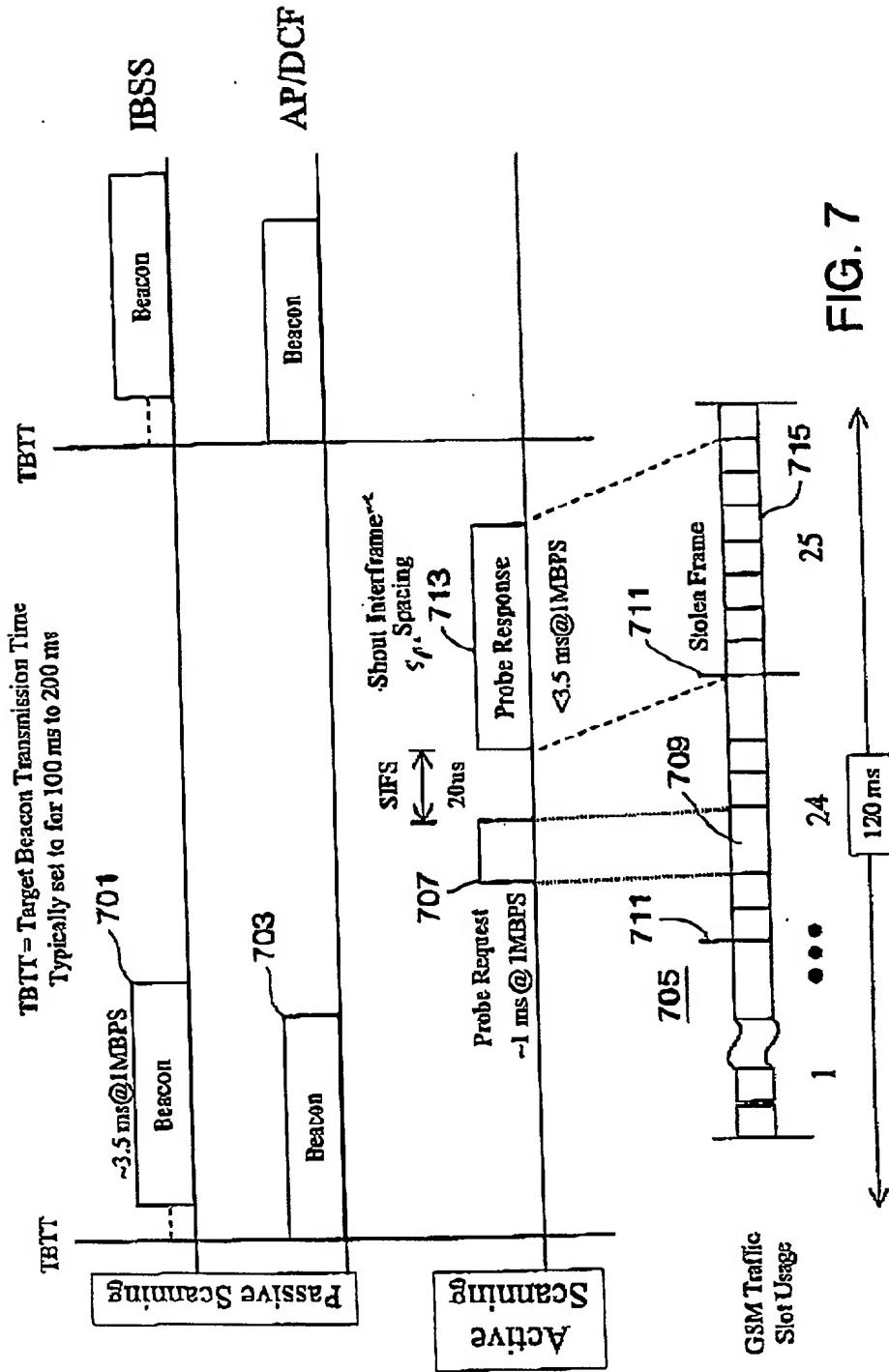


FIG. 6

## Interleaving WLAN Signaling with GSM Traffic For example, Finding a Network



## Interleaving VoIP Traffic with GSM Signaling

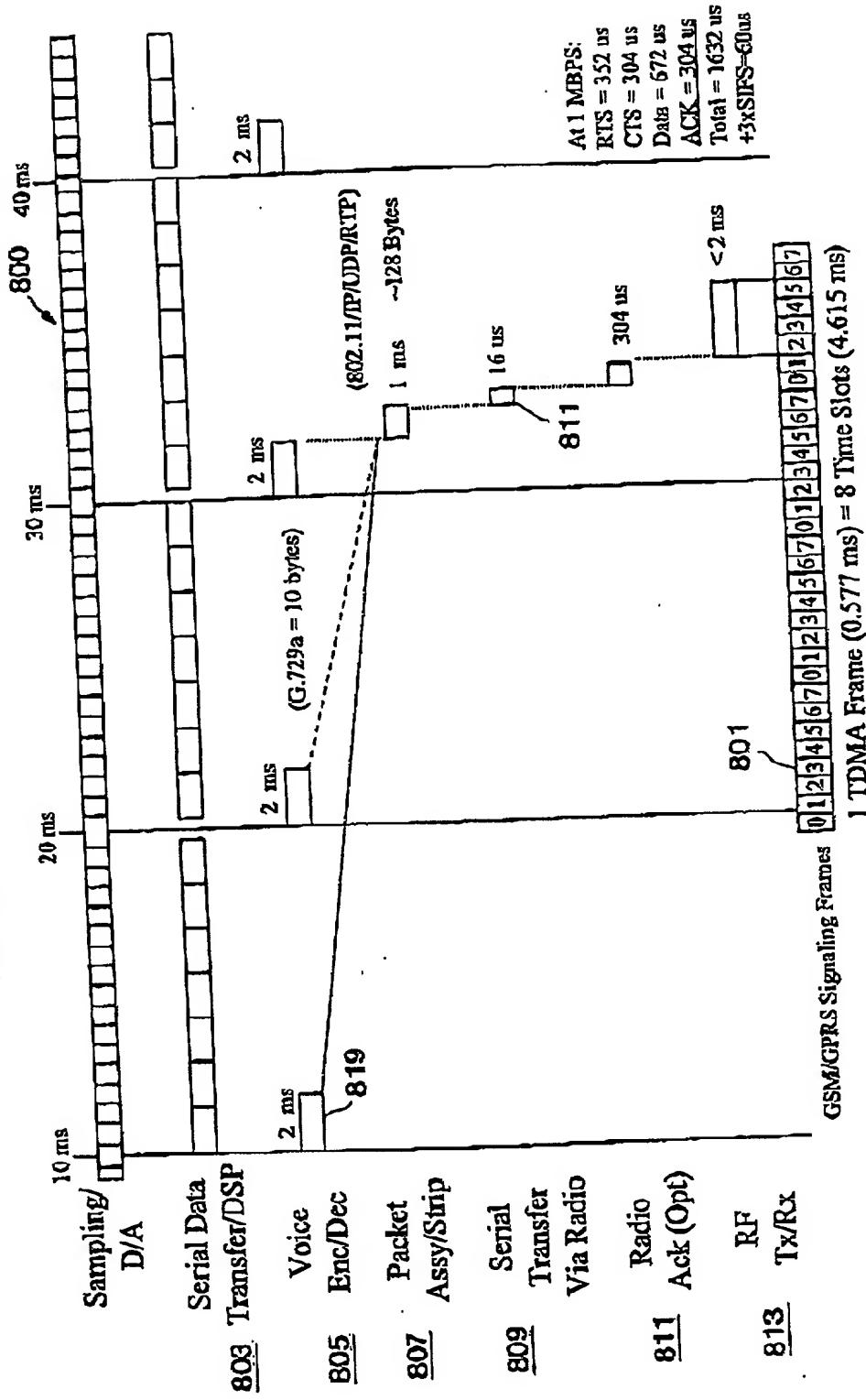


FIG. 8

## Current/Legacy Terminal Architecture

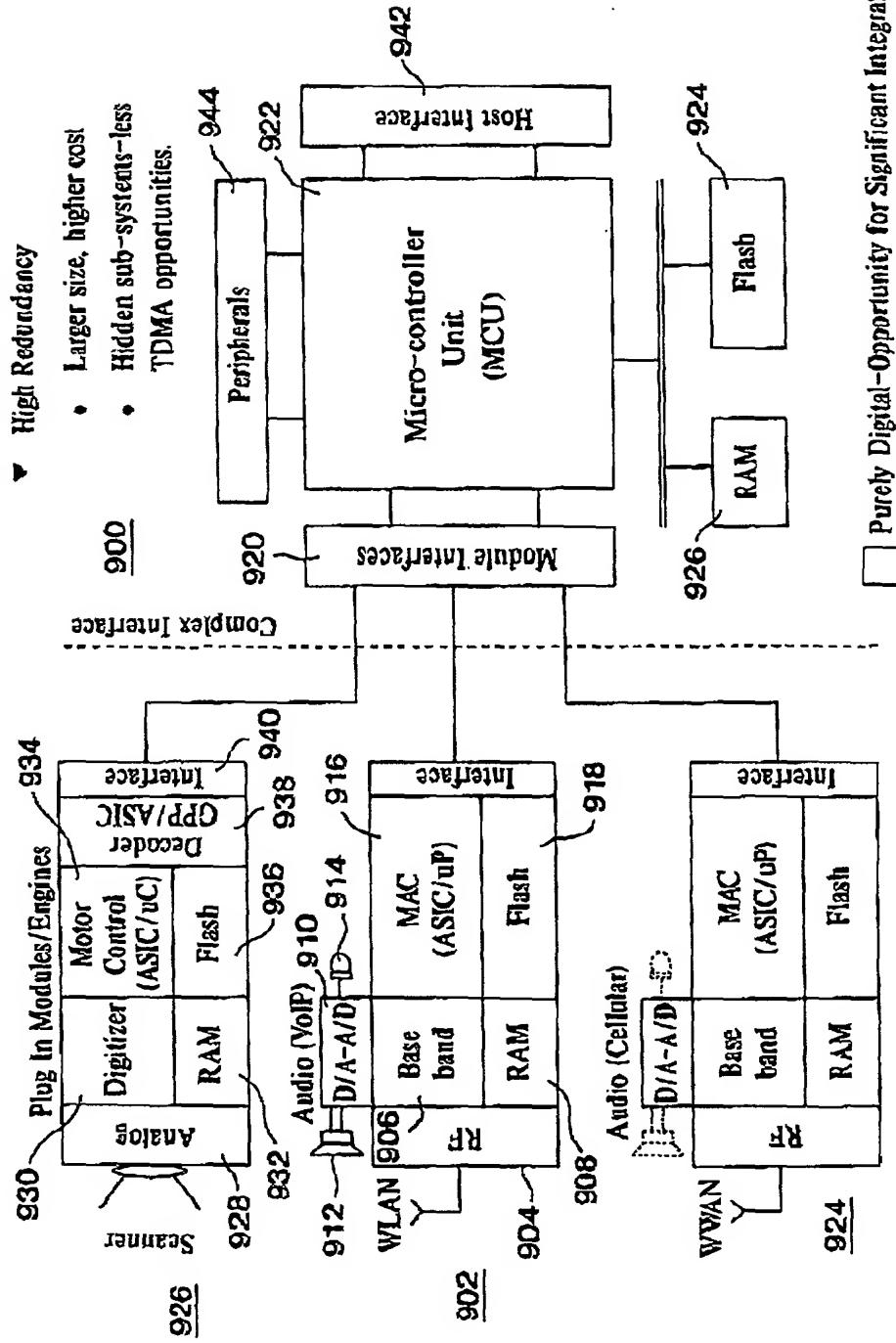


FIG. 9

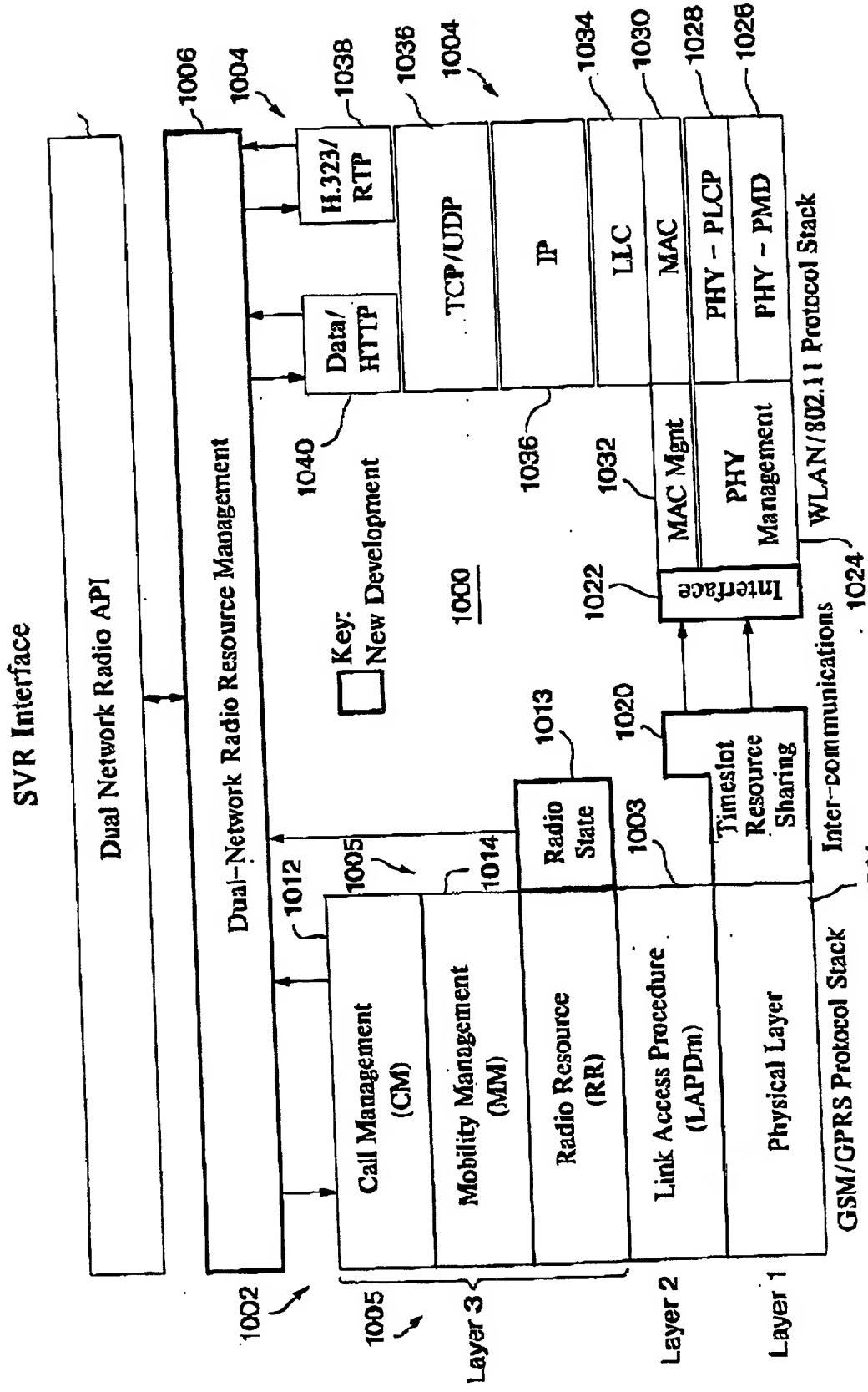


FIG. 10

### Conditions for Seamless Vertical Roaming

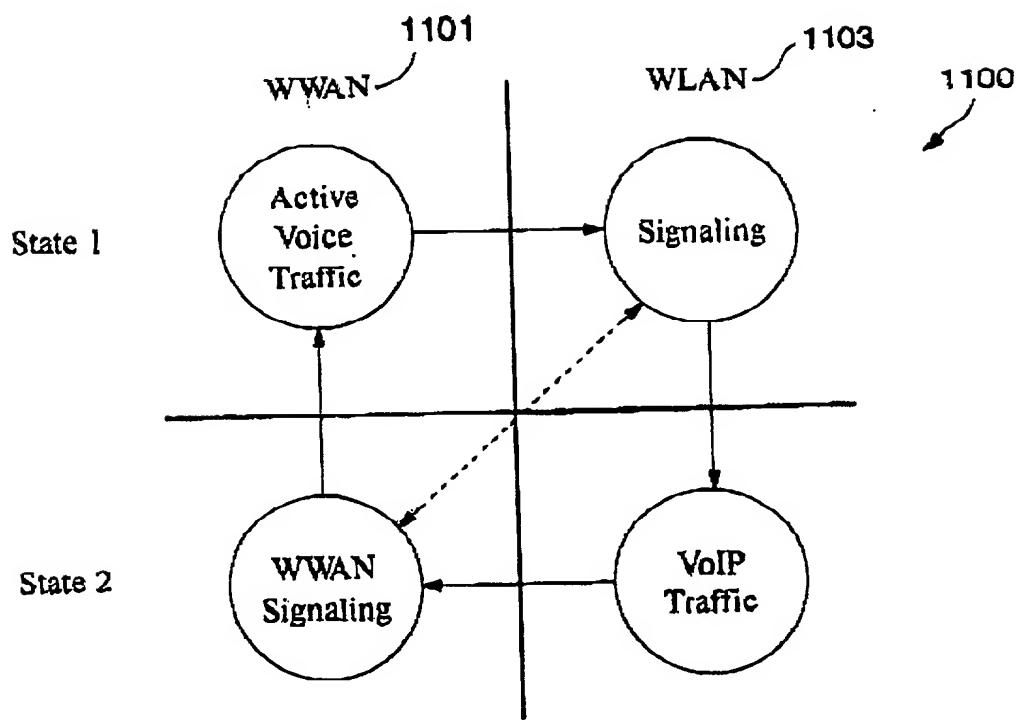


FIG. 11

## SVR from WWAN to WLAN

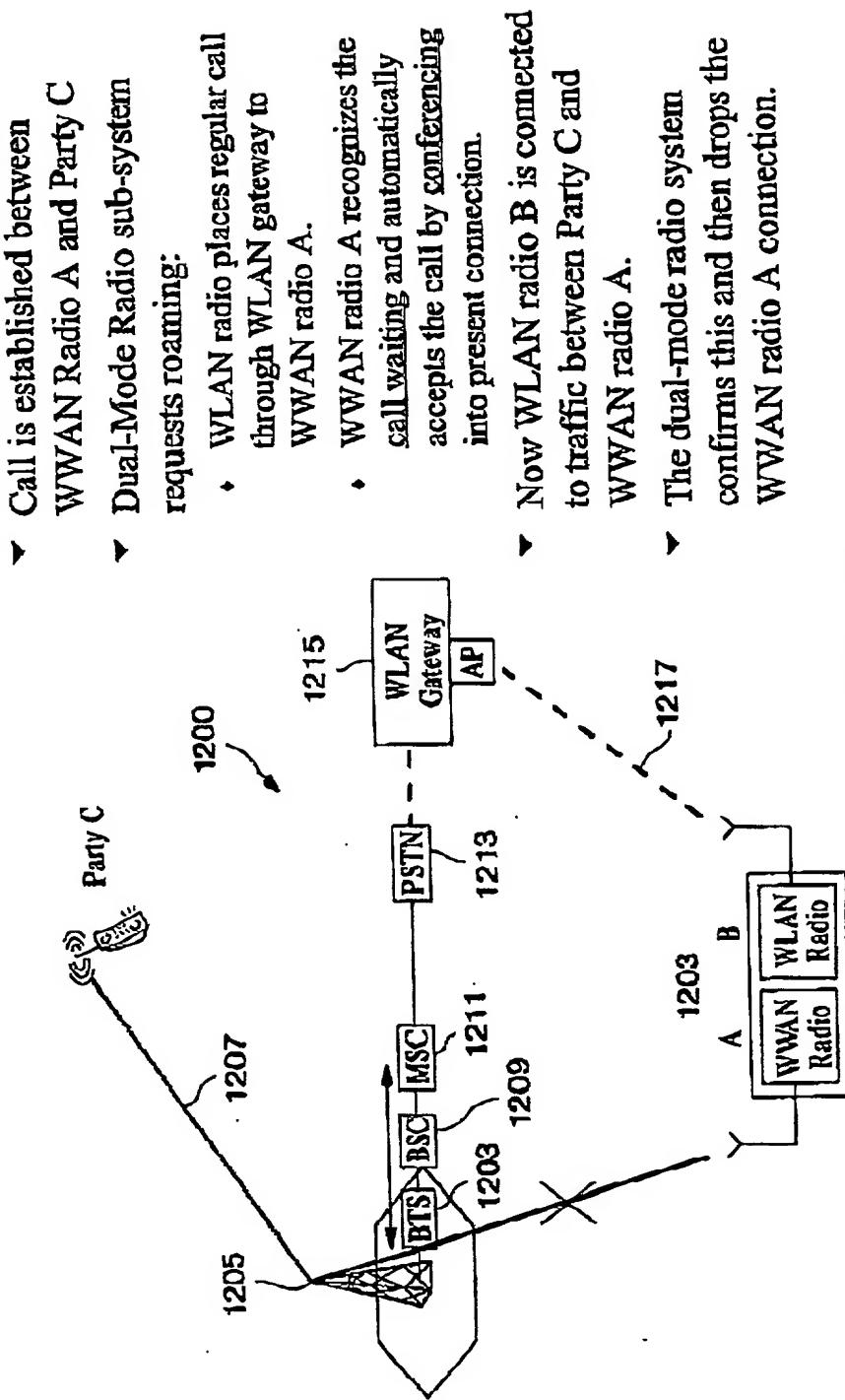


FIG. 12

### SVR from WLAN to WWAN (GM)

- ▼ VoIP call is established between WLAN Radio B and Party C
- ▼ Dual-Mode Radio sub-system requests roaming:
  - WLAN radio places conference call through WLAN gateway to WLAN radio A.
  - WWAN radio A automatically accepts the call.
- ▼ Now WWAN radio A is connected to traffic between Party C and WLAN radio B.
- ▼ The dual-mode radio system confirms this and then drops the WLAN radio B connection.
- WLAN gateway maintains the conference call if it would be otherwise dropped when gateway disconnects.

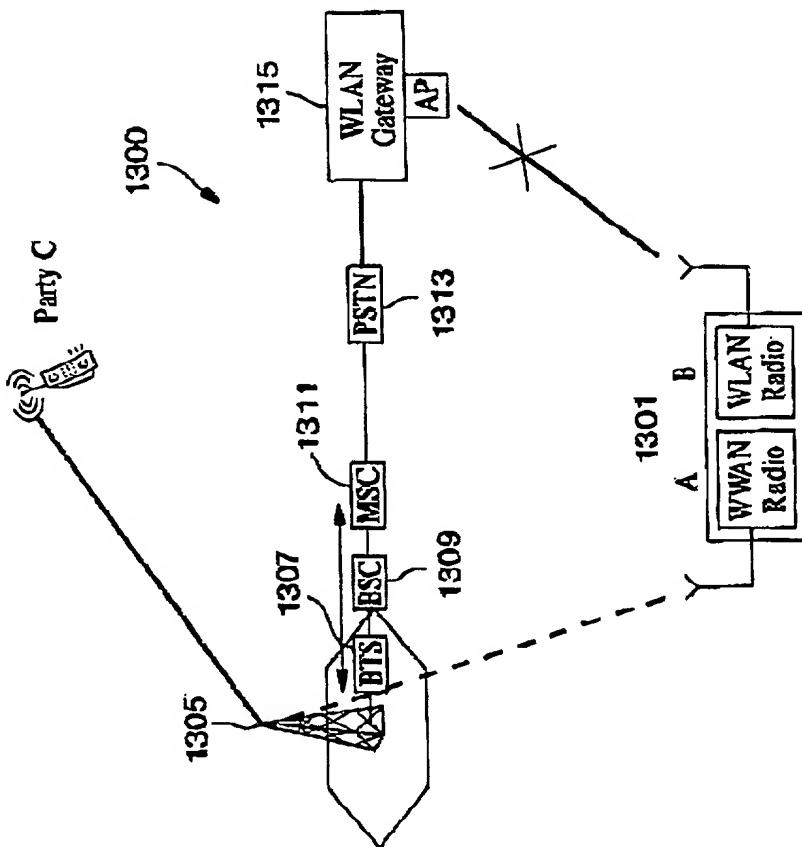


FIG. 13